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THE QUESTION OF THE CIRCULATION OF AGENCY IN TWO IN JUDICIAL INFORMATION INFRASTRUCTURES

Complete Research

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Abstract

The literature on information infrastructures (Ole Hanseth & Lyytinen, 2010) has elaborated principles to be followed for their development. However, according to Aanestad and Jensen (2011), these principles do not emphasize the role of involved stakeholders specifically whether the infrastructures are the result of nation-wide government projects. So, the focus is posed on stakeholders' mobilization and coordination as further factors to take into account. The analysis of two judicial information infrastructures suggests that a further factor contributes to the development of information infrastructures: the circulation of agency or those conditions that allow to online proceedings to acquire legal validity. The fact that online procedures do not determine legal effects is not fundamental in the business environment where the efficiency rationale prevails. Conversely, this is decisive in the judiciary and in other sectors of the public administration due to the risk to build well functioning online proceedings with no legal value.

Keywords: judicial information infrastructure, online proceedings, circulation of agency, stakeholder mobilization, legal validity.

1 Introduction

In Italy, investments in ICT have been considered the only way out (and also the “one best way”) to take out the justice system from a never-ending crisis (Brescia, 2004; Contini & Lanzara, 2009; Jacchia, 2000). Online trial – Processo Civile Telematico (PCT) is an example in this respect. It is a traditional top-down government project that started at the beginning of the last decade to introduce a large-scale nation-wide information system to digitally manage, in a comprehensive way, documents and communications of any civil trial proceeding. The PCT was a system envisaged for the first trial level and not for the appeal level. It is in this context that another project took place: the Online Records Office – Cancelleria Telematica (ROO). This regional project has been promoted by the Court of Appeal of Florence and the Tuscany Region with substantially the same objective of the PCT, even though it was designed specifically for the appeal level. Eventually, the ROO evolved to serve the first trial level system as well and has been adopted by the courts of the Tuscany district, except for the Tribunal of Florence.

Even though, according to the PCT project, in 2005 more than 50 (out of 165) courts would have taken advantage of the PCT’s applications, at the end of 2006 only one application (payment order decree) was available and only in one court, the Tribunal of Milan. At the end of 2011, things have changed significantly. Specifically, the payment order application was used in 32 courts, the real estate execution was used in 12 courts, and the contributory procedures in 5 courts. The exchange of deeds and documents between parties and judges is limited to 4 courts, and only in the Tribunal of Milan the large part of the proceedings planned by the PCT project were already available. Data related to the ROO is different as the ROO has been progressively deployed to its full capacity. However, online proceedings run by the ROO have no legal validity, and at a certain point it is necessary to switch to paper documents to have the proceedings finalized. As a regional system, the ROO has not adhered to the norms that regulate the PCT online proceedings: the national standard.

In a context such as the judiciary, it is not sufficient to provide online services for the exchange of documents and data. It is necessary also to determine legal effects (Lanzara 2013). Online proceedings must be necessarily built according to normative standards for acquiring legal validity and then supporting the circulation of agency. Agency is here intended as the capacity of a proceeding to produce effects upon a state of affairs and its circulation represents the possibility “for such capacity to be transmitted across multiple media, national borders, and functional domains” (Lanzara, 2013 p. 5). The same rules are not in operation in the business environment. Economic transactions are not subject to such controls and a mutual agreement between parties is sufficient to obtain the validity of documents and information exchanged. Differently, in the public administration environment the legislation provides rules for the establishment of online proceedings.

The literature on information infrastructures (Ciborra 2000; Ciborra 2002; O. Hanseth et al. 1996) - and both the PCT and ROO can be considered information infrastructures - has elaborated a series of principles to be followed for their construction. Specifically, Hanseth and Lyytinen (2010), studying the evolution of the internet, maintain that the development of these systems is subject to two types of problem: the “bootstrap problem” and the “adaptability problem”. As it will be demonstrated below, the ROO project has succeeded to face successfully both of them, unlike the PCT. However, according to Aanestad and Jensen (2011), the study of the internet does not stress sufficiently the role of involved stakeholders, specifically in large projects such as the ones considered in this essay. Therefore, to investigate the “bootstrap problem” and the “adaptability problem” is not sufficient. The analysis of the mobilization of the engaged stakeholders is also required. The ROO project succeeded to limit stakeholders’ mobilization evolving smoothly and spreading to the courts of the Tuscany Region. Again, the PCT succeeded in this intent only with difficulty and after a long time.

The study of the PCT and ROO development according to the perspective proposed by the literature on information infrastructures considering also the role of involved stakeholders does not take into consideration the capacity of online proceedings to acquire legal validity. As a result, the intent is to enrich the interpretative framework emphasizing how in the judiciary the construction of flexible and generative information infrastructures (Zittrain, 2006) limiting stakeholders' mobilization is not sufficient. The circulation of agency (Lanzara 2013) needs to be guaranteed. To say it differently, the aim of the present work is to emphasize the necessity to guarantee legal validity to documents and information exchanged due to online proceedings and whether the provision of the circulation of agency eventually requires the reformulation of principles at the basis of information infrastructure evolution.

2 Research strategy

The research question of this paper concerns the factors to consider when building a judicial information infrastructure. Specifically, the central question is whether it is sufficient to limit the investigation of the evolution of judicial information systems with the theoretical framework proposed by the literature on information infrastructures considering the role of stakeholder mobilization. In other words, the wonder is whether the information infrastructure principles at the basis of their development (how to deal with the “bootstrap problem” and the “adaptability problem”) according to Hanseth and Lyytinen (2010) combined with the analysis of stakeholder mobilization and coordination (Aanestad and Jensen 2011) provide a comprehensive theoretical framework for building a government information infrastructure and, specifically, a judicial information infrastructure.

Information infrastructures, as heterogeneous and evolving socio-technical systems, pose a specific challenge to the circulation of agency and the PCT project and the ROO project are apt examples in this respect. The objective of these projects is to provide online proceedings to users of the judiciary (i.e. judges, clerks, lawyers, technical advisors etc.). They last several years as a nation-wide project (PCT) and region-wide project (ROO) and have led to similar online proceedings even though following two significantly different itineraries. The development principles followed, stakeholder mobilization and the provision of legal validity (circulation of agency) were distant.

The adopted research strategy falls under a case study (Yin, 2009). Being characterized by multiple units of analysis (PCT and ROO), it is an embedded case study. The fact to turn to multiple units of analysis made it possible not only to evaluate the two infrastructures in the creation of online proceedings on the basis of the established theoretical framework, but also to observe the inadequacy. A longitudinal study such as the PCT and the ROO demonstrates that the development of these information infrastructures falls short to be explained by the theoretical framework provided. Actually, the framework was tested positively but with limits for investigating government information infrastructures and, specifically, judicial information infrastructures.

For answering the question of how and why the PCT and ROO are two inherently distinct configurations we concentrate, at first, on principles at the basis of the development of information infrastructures (Hanseth and Lyytinen, 2010) for investigating the strategic choices made. Second, the level of stakeholder for the development of the infrastructure was explored (Aanestad and Jensen, 2011). In conclusion, we propose the concept of the circulation of agency for integrating the theoretical framework already developed by Aanestad and Jensen (2011) as it stresses the conditions that lead to online proceedings to have legal effects (Lanzara 2013).

This study is a result of the research project funded by EU. Then, there has been the possibility to visit to the Tribunal of Milan for interviewing the members of the administrative staff, the “innovation office” and the IT Department. The Tuscany Region was visited twice for interviews, in some cases repeated, with the members of the Information Systems Departments and of the Records Office at the Court of Appeal of Florence. Software houses were another source of information as well as a member

of the IT Department at the Ministry of Justice in Rome. To participate to a project funded by EU means to elaborate a series of project documents that have constituted the backbone of this research study evidence.

3 Theoretical framework

In order to discuss and evaluate the evolution, implementation and deployment of both the PCT and the ROO, the concept of information infrastructure (Ciborra, 2000; Hanseth and E. Monteiro, 1997; Hanseth and Aanestad 2003; Hanseth and Lyytinen 2004) should come to the fore. An information infrastructure (II) is identified as “a *shared, open* (and unbounded), *heterogeneous and evolving* socio-technical system (which we called installed base) consisting of a set of IT capabilities and their user, operations and design *communities*” (Hanseth and Lyytinen, 2010 p. 14).

Both the PCT and the ROO are *shared* systems coordinating the activities of different actors (judges, clerks, lawyers etc.). The question if the PCT is an *open* system is more controversial. Actually, the PCT can be considered a closed system rather than an open one. It is not characterized by flexibility and modifying or adding new parts requires a significant adaptation of other parts. Nevertheless, its configuration in these days is significantly different in comparison with the PCT designed at the beginning of last decade. The *evolution* of the Point of Access (PoA) (it enables communication and online document exchange between courts and their environment (i.e. lawyers)) and the switch from one case management system to another can be considered accordingly. The ROO is an open system as a part of a large infrastructure connecting all sorts of information systems present in the Tuscany Region. Surely, the PCT is a *heterogeneous and evolving* system and the same is valid for the ROO. They have evolved significantly, and the different characteristics of their components (legal, technological and organisational) do justice of their heterogeneity. As far as *communities* are concerned, users’ community is formed by judges, court administrative staff, lawyers, technical advisors and citizens; operation community by courts IT units and the bar association IT units; design community by the IT department of the Ministry of Justice, the IT department of the Tuscany Region and software houses.

Hanseth and Lyytinen’s work (2010) propose also a series of principles for designing IIs. These principles are seen as an answer to two main design challenges: the so called “bootstrap problem” and the “adaptability problem”. The “bootstrap problem” addresses the establishment of a novel II. The point is how to build a user community from scratch able to take advantage of it. The “adaptability problem” concerns the possibility to develop an II and its capability to deal with unforeseen demands, opportunities and barriers that can emerge during its growth.

The “bootstrap problem” can be addressed according to three main principles: “design initially for direct usefulness”; “building upon existing installed base”; “expanding the installed base by persuasive tactics to gain momentum”. The first principle suggests that the designed II is able to persuade initial users due to the possibility to manage their needs and solve their problems not on the basis of a complete solution or a large user base. What is considered crucial is to provide immediate use value in view of the full development of the solution that will be achieved later. The second principle stresses the importance of taking advantage of existing infrastructure, platforms and communication formats. In this way, cost savings will be obtained and, above all, adoption barriers for the users will be smaller. A step-by-step logic defines the third principle. In other words, a new functionality will be added only when the user base will have grown enough to support further cost development and learning required.

As far as the “adaptability problem” concerns, namely the building of flexible and adaptable IIs, the principle of “making the IT capability as simple as possible” and the principle to “modularize the II” are estimated as apt for addressing it. Specifically, simplicity promotes the overlapping of IT

capability and modularity allows to exploit gateways to connect different layers and to maintain a loosely couple connection in the infrastructure (See table 1).

Design problem	Explanation	
Bootstrap problem	Design initially for direct usefulness	The solution must persuade the initial users through targeting their needs and solving their problems; easy to use and implement; useful without a larger user base
	Build upon existing installed base	Exploit existing infrastructures, platforms or communication formats already in use; no need for new support infrastructures
	Expand installed base by persuasive tactics to gain momentum	Generate positive network effects from extending the user base; before adding new technology, ensure that the user base has grown to sustain the added cost of development and learning
	Seek appropriate modularity to ensure easy stakeholder mobilization	Modular solutions lead to modular implementation strategies that limit stakeholder wide-spread and long term commitment
Adaptability problem	Make the IT capability as simple as possible	Make the information infrastructure as simple as possible (both technically and socially); promote overlapping IT capabilities
	Modularize the information infrastructure	Separate the layers of infrastructures from each other and exploit gateways to connect different lawyers

Table 1. Design problems and principles (Source: Hanseth and Lyytinen, 2010; Aanestad and Jensen, 2011).

To identify design principles of an II is not considered sufficient in order to actually build it (Aanestad & Jensen 2011). These principles do not take into consideration what takes place with IIs implementation as far as organizing, mobilizing and coordinating stakeholders are concerned. To say it differently, the point is to examine how stakeholders are involved and managed in national and regional initiatives in which legal norms provide the environment for infrastructure-building. Aanestad and Jensen (2011), turning to the Hanseth and Lyytinen's work (2010), emphasize the role of modular solutions in the implementation strategy. A modular solution (a standalone, generic technological component with standardized interfaces) circumscribes stakeholders' participation and commitment, creating a context in which their coordination is favoured in comparison with a non-modular solution (a functional module within an integrated solution). The notion of "modular implementation strategies" is then introduced leading to the formulation of a fourth principle related to the "bootstrap problem": "seek appropriate modularity to ensure easy stakeholder mobilization" (Aanestad and Jensen 2011). Therefore, modularity question does not only concern the "adaptability problem" or the promotion of the growth of IIs but also its start up. Keeping under control stakeholder mobilization means to support the bootstrapping phenomenon and principles such as the "design for direct usefulness" and the "persuasive tactics" are applied. The former circumscribing a specific category of

users and the latter envisaging a series of steps in which stakeholders are involved in a decoupled and independent manner (see table 1).

The exchange of information or documents between business is not subject to specific regulations. In the judiciary and also in other domains of the public administration, this is not the case. Procedures must abide by regulations in order to acquire legal validity. The concept of the circulation of agency is of some help in this respect (Lanzara, 2013). Online judicial proceedings must provide the circulation of agency so that “actions initiated in a specific place, time, functional domain are carried across a sequence of multiple enchainment without that agency losing its effectiveness, its meaning and its capability to produce effects in a different place, time and functional domain”(Lanzara, 2013, p. 5). In this understanding, agency is not only an attribution of humans but of any entity (actor, object, document, system, code, device, tool) that changes a state of affairs (Introna, 2007, Introna, 2009). The term ‘actant’ (Callon, 1992; Latour, 1992) contributes to clarify the concept of agency as it represents a change in the state of things and also in the production of new realities attributed both to human and non-human components (Lanzara, 2013). The question, now, is to see how the “bootstrap problem”, the “adaptability problem”, the modular implementation strategy, and the circulation of agency characterise both the PCT and ROO.

4 The development of online civil proceedings in the Processo Civile Telematico (PCT) (1999-2011)

4.1 The origins of the Processo Civile Telematico (PCT) project

The origins of the Processo Civile Telematico (online trial) project date back to the beginning of last decade when, on the basis of an explorative study and feasibility study two competitive tenders were issued: one for the acquisition of hardware and software and one for the organizational support.

The PCT was assigned to provide:

- a reengineering and an evolution both of automated registries (the case management systems) and a system for accessing them remotely allowing also the filing of main information related to the status of a trial.
- The design and the production of an application for lawyers and technical advisors that supports the formulation and the deposit of legal documents online to courts.
- The design and production of a unified repository for managing virtual dossiers in which documents and files of proceedings are accessible online.
- Hardware and software systems to be installed in six “local laboratories” (pilot courts), related maintenance and a customer care service; the spread of the hardware and software systems in further 50 courts and related assistance in the implementation process; a help desk service for all the 56 courts; personnel training in any of the 56 courts; the creation of a so-called model office in which systems can be developed and tested.

Within 2004, the hardware and software components had to be completed, as well as their testing in the six laboratories, while these systems were to be extended to the remaining 50 courts in 2005.

4.2 The main objectives of the PCT project

The PCT's main focus is a comprehensive management system for documents and communications of any civil trial proceeding through digital solutions (Comitato di Progetto di “Assistenza alla realizzazione del Processo Civile Telematico”, 2004). In other words, it makes possible to:

- Manage digitally the large part of information related to civil trial proceedings (from arraignment to sentencing).
- Manage electronically all the communications and information exchanges among the different actors involved in a civil trial proceeding (judges, lawyers, clerks, bailiffs, other advisors etc.);
- Simplify activities related to paper handling due to the dematerialization of proceedings.
- Promote transparency of proceedings and speed up their timeline.

4.3 How to access the judiciary

The so-called points of access (PoA) enable communication and online document exchange between courts and their environment. Regulations stated that PoAs are run by the Bar Associations and not by individual lawyers, in order to avoid unauthorized usage. In fact, only these associations were entitled to supervise the legitimacy of their members to practice law.

Even though the PCT project foresaw the construction of a unified repository run by the Ministry of Justice to integrate Bar Associations PoA, it was not adopted. This means that the access to courts relies upon the setup of a PoAs by any of the 165 Bar Associations present in the country.

The style "Bullet" should be used here. This is a complementary sentence. This is a complementary sentence. In the following you can find an example of a second level list:

4.4 PCT and POLISWEB: two parallel tracks

At the beginning of last decade, POLISWEB, a system only for accessing the case management systems remotely, was deployed successfully only in few venues. Meanwhile, the PCT project was in full steam. The point was whether to continue POLISWEB deployment when the PCT project was already in progress. POLISWEB was not abandoned as supposed at the beginning. Conversely, it was readapted and used until 2011. At this point, from the end of 2006, when the first PCT service went into operation in the Tribunal of Milan, two kinds of access were available to lawyers: the POLISWEB PoAs (to access the case management systems) and the PCT PoAs (to access the case management systems and also new online proceedings).

In 2010 a new regulations related to the organization of PoAs was issued. The certified electronic mail (CEM), a system that enabled citizens to enter into a secure official dialogue with local and central governments was introduced to support efilings substituting PoAs. The CEM service, however, did not cover all the ground. The PoA remained necessary in this new architecture for consulting automated registries, for paying court fees, and for requiring document duplicate.

4.5 Online civil proceedings at the Tribunal of Milan: the implementation of the PCT project

The era of legally valid online civil proceedings started at the end of 2006 when the first payment order was managed electronically at the Tribunal of Milan. As an important instance of the PCT project, this Tribunal has been studied in detail considering also that has been the point of reference for the spread of the PCT at the national level.

The Tribunal's Innovation Office is at the core of the PCT adoption. As composed by representatives of the local bar association, judges, clerks, and the local office of the ICT (a detached office of the IT Department of the Italian Ministry of Justice), it gained legitimacy and its decisions were accepted by all judicial actors.

The Milan Bar Association contributed also significantly to the introduction of the PCT. Due to its lobbying activity to the Tribunal, a fruitful environment for the adoption of innovations, such as the

PCT, was created. The collaboration with the department of law and informatics at the University of Milan was instrumental in this respect. Therefore, at the end of 2011, 8,000 lawyers, out of 12,000, registered at the PoA also because of PCT information dissemination and large-scale training programs to recruit users. The Milan Bar Association along with the Tribunal ran the so-called Unified Front Office. Placed in the Tribunal of Milan, it provides help desk services to lawyers without a PoA access both about respective documents and information, on the one hand, and the PCT implementation and use, on the other hand.

5 Civil proceedings online at the Tuscany Region: the Records Office Online (1999 – 2011)

The Records Office Online (ROO) originated from a collaboration between the Court of Appeal of Florence and the Tuscany Region, which dates back to end of the '90 when a team between the two parties was established.

The PCT was designed mainly for the first trial level rather than for the appeal level. Inevitably, this level has been less influenced by the innovation wave fostered by the PCT project. In this context, in which the role of the Ministry of Justice was marginal, a collaboration between the Tuscany Region and the Court of Appeal was established. The intent was to use the regional information infrastructure to streamline judiciary activities so that better services to citizens and companies will be provided.

At the basis of this infrastructure, there is the so-called “cooperative application of the Region of Tuscany” (CART). CART supports interoperability both among software applications of the regional network and also external systems (ministries, public institutes, private bodies etc.). In order to ensure interoperability, three main elements are required:

- a shared infrastructure for transmitting information and documents electronically;
- a common definition of a “language” that establishes which information has to be exchanged and which meaning it acquires;
- the guarantee that actors abide for the transmission specifications of document and information.

The CART infrastructure consists in specific standards for supporting both the provision and use of documents among the involved actors. Standards adoption is monitored by the eToscana Compliance, a body in charge of the coordination of software applications within the CART. A register lists certified software applications.

The CART is installed in a node called LAN (Local Applicative Node). A LAN is a hardware system placed in a specific public body and as such, via a specific interface, provides communications with another LAN and then with another public body. In the Tuscany Region, there are 125 LANs and also shared LANs as in the case of the Court of Appeal of Florence that is part of one of the Tuscany Region LANs. To join the CART means the possibility to exchange information and documents with any other public or private (also private entities can be part of the CART) body of the Tuscany Region.

Differently from the rest of Italy, court automated registries are part of the CART. They have been subject to the process outlined above as far as the deployment is concerned.

The ROO has developed step by step. At first, the most pivotal functions were introduced at the Court of Appeal of Florence and once they were considered sufficiently established less relevant followed as well as the spread to other courts of the Tuscany District.

The ROO enables:

- judges to post sentences and other documents, to manage files of the parties and have access to sentences issued by courts;
- lawyers to search the files under their jurisdiction, to post briefs and pleadings, to read those of the opposing party, and to be informed about judges' activity and acquire related documents;
- a common definition of a "language" that establishes which information has to be exchanged and which meaning it acquires;
- technical advisors to electronically submit reports and attachments;
- clerks of the court to send notifications and summons according to the Code of Civil Procedure.

The ROO works also as a PoA differently from the PCT case in which PoAs are run by Bar Associations. The identification and authorization system is accessible not only through a smart card technology but also through user name and password provided by the ROO favouring its adoption.

The ROO has evolved independently from the PCT project even though its functions are similar. The Tribunal of Milan analyzed above and the Court of Appeal of Florence shared only automated registries. Due to the fact that ROO has not adhered to regulations of the Ministry of Justice, online proceedings have no legal value. This means that a parallel path had to be followed. Online proceedings, at a certain point, must be transformed into paper based ones to meet the regulations.

6 The evolution of two information infrastructures: PCT and ROO.

6.1 The development principles followed by PCT and ROO

The design principle n.1 ("design initially for direct usefulness") has not been followed in the PCT development. The PCT was expected to provide usefulness only when large part of civil proceedings would have been automated. The decision not to provide a ministerial PoA leaving its construction to any of the 165 Bar Associations contributed to this situation as it was impossible to take advantage of the PCT if implemented only at the court level. The ROO follows a step by step evolution. Online proceedings have been deployed starting from those considered more important for the functioning of the Court of Appeal of Florence and then spread to the Tuscany courts of the first trial level.

With respect to design principle n.2 ("building upon existing installed base"), the PCT was conceived as something completely new, with no relation with what was built before and had to be abandoned. An environment that can be defined as "installed base hostile" (Aanestad and Jensen, 2011) prevailed considering that, at the time, only local and independent applications were available. In the ROO case the scenario changes as the information infrastructure of the Tuscany Region represented the installed base on which it has been built. The ROO is a simple component of a large infrastructure allowing a relevant number of systems to interoperate.

In terms of persuasive tactics (principle n.3), despite the strong support to the PCT from the ministerial level as well as the availability of conspicuous financial resources, results were obtained only starting from 2006 in the Tribunal of Milan with the introduction of the payment order online as a fundamental solution for a financial centre such as Milan. In the case of the ROO, to set up online proceedings according to the relevance was the norm at the Court of Appeal of Florence. Then, further courts have joined the project.

Turning to the adaptability problem, the design principles n.4 and n.5 are represented by simple solutions and modular solutions allowing to information infrastructures to grow flexibly. Conversely, the PCT project outlined a comprehensive solution addressing multiple goals and even though it is composed by modular solutions, online proceedings require a close integration of components

bringing about rigidity rather than flexibility. The ROO was built upon other systems of the Tuscany Region and large part of its components have already been tested in other contexts and adapted for the judiciary facilitating the use. The ROO is nothing more than a layer of a far larger infrastructure ready to be interconnected. Table 2 and table 3 summarise the design principle followed by the PCT and the ROO.

Design problem	Explanation	
Bootstrap problem	Design initially for direct usefulness	The PCT project, at least in the first part of its implementation, did not provide immediate usefulness
	Build upon existing installed base	The pre-existing technological installed base was abandoned for implementing a large scale project such as the PCT.
	Expand installed base by persuasive tactics to gain momentum	Only in 2006, in the Tribunal of Milan, with the payment order decree online, a persuasive tactic was followed. Then, this tactic have spread significantly
	Seek appropriate modularity to ensure easy stakeholder mobilization	The involvement of the 165 Bar Associations, the continuous modification of the legal framework and the comprehensive automation of proceedings at least until 2006 has required a large stakeholder mobilization
Adaptability problem	Make the IT capability as simple as possible	At least originally, the objective was to envisage a comprehensive solution that reformulated completely court activities
	Modularize the information infrastructure	The fact that PCT modules are strictly interconnected prevents the flexibility of the entire system

Table 2. The PCT development principles

Design problem		
Bootstrap problem	Design initially for direct usefulness	The ROO project tried, immediately, to provide immediate usefulness to users of the Court of Appeal of Florence
	Build upon existing installed base	The installed base of the Tuscany Region was largely used as the backbone to the ROO.
	Expand installed base by persuasive tactics to gain momentum	A step by step policy has been followed promoting online solutions decisive for the functioning of the Court of Appeal. The same policy has been followed with other courts of the Tuscany Region
	Seek appropriate modularity to ensure easy stakeholder mobilization	The ROO can be considered a module of the Tuscany Region II. As such, stakeholder mobilization has been circumscribed considering also the step-by-step spread of online proceedings in the same court and from court to court.
Adaptability problem	Make the IT capability as simple as possible	The ROO has taken advantage of the experience acquired in the implementation of similar solutions in other areas of the public administration
	Modularize the information infrastructure	The ROO is a layer of a larger infrastructure ready to be interconnected with all other systems present in it

Table 3. The ROO development principles

6.2 Modular implementation strategies in PCT and ROO

The PCT project did not require the mobilization of a large number of stakeholders. It was a traditional top-down government project and two competitive tenders led to the development of hardware, software and organisational support. At first, involved stakeholders could be relatively circumscribed: the Ministry of Justice, courts, the actors recruited through the tenders and users (layers and expert witnesses). The decision not to go ahead with the ministerial PoA (Point of Access) changed the situation and all the 165 Bar Associations needed to be involved. The ROO can be considered a bottom-up project realized by the Court of Appeal of Florence of the Tuscany judicial district in collaboration with the Region. The Information Systems Department at the Region and the Record Office are the main stakeholders involved. The involvement of the Bar Associations has been far less relevant as the Tuscany Region provided the PoA. Further, software vendors were involved at Regional level rather than at project level in comparison with the PCT circumscribing their involvement.

The “innovation office” at the Tribunal of Milan is a significant example of the level of stakeholder mobilization that a project such as the PCT requires at local level. At this point the question is whether further courts have the same mobilization capacity of the Tribunal and of the Bar Association of Milan. The team established between the Tuscany Region and the Court of Appeal of Florence shares a lot of characteristics with the “innovation office” taking advantage of the supportive environment provided by the regional level.

The implementation strategy followed by PCT was characterized by a wide and long-term stakeholders’ commitment with expected benefits available only in the long term. The technological architecture composed by closely integrated functional modules contributed to this situation. To operate such systems has taken time leading to a temporal asymmetry between investment and benefits that has required a significant stakeholder mobilization. Even the ROO case, stakeholders’ wide and long-term commitment has been necessary. However, tangible benefits have been achieved in a shorter span of time and the fact to be part of a large infrastructure, such as that one of the Tuscany Region, limits the mobilization of stakeholders.

In conclusion, the ROO adopted a modular implementation strategy in contrast to the PCT. The ROO was a part of a wider information infrastructure in which stakeholders were mobilized according to the different project stages independently from each other. This prevented scheduled and coordinated activities that inevitably required a larger mobilization. Conversely, the PCT large scope to reformulate completely court activities was addressed with difficulty at least before 2006 (see table 2 and 3).

6.3 The circulation of agency in the PCT and ROO

The legal validity of online proceedings dates back to the end of 2006 when the first payment order was issued by the Tribunal of Milan. In 2010 documents exchanges between parties also acquired legal validity, and so did the communications of the court. This process will continue in the Tribunal of Milan as in all other courts of the Italy and is based on a series of norms. Once online proceedings are conformed to the norms and lawyers and other users are registered to the PoA (Point of Access) automatically they acquired legal validity. This is not the case of the ROO as it has not adhered to norms that regulated the PCT online proceedings. Therefore, the circulation of agency is enabled only following the norms that regulate paper-based proceedings. In this way, at a certain point, what has been managed electronically has to be printed to acquire legal validity. However, a court not only interacts with lawyers or technical advisors but also with other public administrations, such as Municipalities and the Tax Agency. Online proceedings with these public bodies acquired legal validity as part of the Regional information infrastructure.

7 Conclusion

The objective now is to offer considerations on the evolution of the PCT and the ROO on the basis of the theoretical framework proposed by the literature on information infrastructures and on the circulation of agency. The “bootstrap problem” and the “adaptability problem” design challenges have been faced in completely different ways by the PCT and the ROO. The PCT provided value to users with difficulty and was not built upon the existing installed base. On the contrary, the ROO succeeded in a relatively short time to provide usefulness to users, it is a part of a large information infrastructure, and an incremental policy has been followed in order to extend the ROO's user base. As far as the “adaptability problem” is concerned, the PCT, at first, envisaged a comprehensive solution that attempted to reformulate court activities completely, falling short to provide simple solutions. While modularity characterises the PCT system architecture, its components, all the same, are strictly interconnected, interfering with the flexibility of the entire system. Conversely, the ROO has had the possibility to take advantage of the experience acquired in similar contexts, such as the health service, and introduced reliable solutions.

In the case of the stakeholder mobilization issue, the PCT and ROO are in stark contrast as well. The assignment to the 165 Bar Associations the establishing the PoA (Point of Access) required the involvement of a large number of stakeholders. Besides, the role of “innovation office” at the Tribunal of Milan suggests the level of mobilization and coordination required to deploy online proceedings. The ROO scenario is completely different. The PoA is managed directly by the Tuscany Region the team between the Information System Department at the Tuscany Region and the Records Office at the Court of Appeal of Florence has succeeded to support both the ROO's technological development and its spread to other courts.

So far, the ROO, in comparison with the PCT, seems an ideal case. It has managed both the “bootstrap problem” and the “adaptability problem” without mobilizing and coordinating a large number of stakeholders, as was necessary in the case of the PCT. However, in a context of the judiciary, all of this is not sufficient for building and then deploying appropriate systems. The capability to enable the circulation of legal agency is a further crucial factor in this respect and the ROO results are inadequate. At a first look, a trade-off emerges between the modularity principle and the circulation of agency. Inevitably, the circulation of agency is supported if all the different components of a specific system are part of a unified design that creates conditions of compliance. Both modular solutions and modular implementation strategies go in the opposite direction emphasizing the self-subsistence of technological solutions and implementation strategies.

Finally, the analysis of the evolution of the PCT and ROO considering design principles adopted and the capacity to mobilize and coordinate stakeholder is incomplete if the circulation of agency is not enabled.

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